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10/595,468

04/21/2006

Stefan Kaskel

100716-63 KGB

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EXAMINER

HOBAN, MATTHEW E

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

08/12/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/595,468 | Applicant(s) KASKEL ET AL. | |
| | Examiner Matthew E. Hoban | Art Unit 1793 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 8-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/21/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Claims 1-7 in the reply filed on 6/2/09 is acknowledged. The traversal is on the ground(s) that the examiner has not met the burden of showing that the examination of all claims would create a burdensome search and thus the examiner has not made a proper restriction under section 800 of the MPEP. This is not found persuasive because the application is a national stage application filed under 35 USC 371. The guidelines set forth in Chapter 800 of the MPEP are limited to those applications filed under 35 USC 111(a) and do not apply to those applications filed under 35 USC 371 (See opening paragraph of Section 800). The guidelines for proper restrictions for 371 applications can be found in Chapter 1800 of the MPEP and specifically within 1893.03(d) (See PCT Rule 13.1 and 13.2), which lays out the basis for unity of invention. It has been clearly demonstrated that the instant claims lack unity as they contain no "special" technical feature, as was elucidated in the previous communication.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

2. Claims 1-2, and 4-7 rejected under 35 U.S.C. 102(b) as being anticipated by Que in his publication entitled "Photoluminescence and electroluminescence from copper doped zinc sulphide nanocrystals/polymer composite"

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Regarding Claim 1: Que teaches PMMA matrixes in which Cu-doped ZnS is doped.

PMMA is a glassy plastic as it is amorphous and used for products such as Plexiglas

(See Column 1 of Page 2728). Photoluminescence of this system is shown in Figure 2.

Regarding Claim 2, 4-6: ZnS:Cu is used as a luminescent nanoparticles, which is a

ZnS host matrix doped with the transition metal, Cu (See Column 1 of Page 2728).

Regarding Claim 7: Que teaches the use of PMMA, which is a polymethacrylate (See Column 1 of Page 2728).

3. Claims 1-7 rejected under 35 U.S.C. 102(b) as being anticipated by Huang in his publication entitled "Photoluminescence and electroluminescence of ZnS:Cu nanocrystals in polymeric networks".

Regarding Claim 1: Huang teaches polystyrene networks that are doped with ZnS:Cu nanocrystals through a reaction step with hydrogen sulfide. As the composite shows the EL and PL spectrums as seen in Figures 5 and 2, respectively; the polystyrene must be clear, which means that it is an atactic form of polystyrene. Crystalline polystyrene is opaque and no PL or EL spectrum would be noted as the opaque nature of the polymer would inhibit the propagation of the visible light emitted by the phosphor. For these reasons the polystyrene must inherently be atactic and thus be amorphous.

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Regarding Claim 2, 4-6: ZnS:Cu is used as luminescent nanoparticles, which is a ZnS matrix doped with a transition metal, Cu (See bridging paragraph b/w columns of pg 2335).

Regarding Claim 3: The composite initially contains 8.32 wt% of Zn:Cu as metallic dopants to form the ZnS:Cu nanoparticles. After reaction, these metallic Zn:Cu particles would become ZnS:Cu, so the additional Sulfur would increase the final wt%. In order to completely react, 8.17wt% of sulfur must be added through hydrogen sulfide. This means that the final product ideally contains 15.24 wt% of ZnS:Cu (See beginning of Column 2 of page 2335).

Regarding Claim 7: Huang teaches the use of sulphonated polystyrene, which is a polystyrene variant (See Column 1 of Page 2728).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew E. Hoban whose telephone number is (571) 270-3585. The examiner can normally be reached on Monday - Friday from 7:30 AM to 5 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. Melissa Koslow/
Primary Examiner, Art Unit 1793

/Matthew E Hoban/
Examiner, Art Unit 1793